

REMARKS

Summary of Office Action

Claims 28-36 and 59-69 are pending.

All of the pending claims have been rejected under 35 U.S.C. 103(a) as being obvious from Panasik U.S. patent No. 6,590,884 B1 ("Panasik") in view of Belanger et al. U.S. patent No. 6,590,884 B1 ("Belanger").

Applicants Reply

Applicant has amended claims 28, 29, 32 and 33 to clarify the invention. Claims 60, 61, 64, 65 and 68 have been amended to make them dependent on independent claims 28, 29, 32, 33 and 59, respectively. Applicant respectfully traverses the prior art rejections.

Prior Art rejections

As previously noted, applicant's invention provides a novel systems, methods and devices for providing wireless data communications between a mobile unit and a wired network following a protocol, such as IEEE Standard 802.11. Prior systems following such protocols use access points which are complex because of the need to perform all of the medium access control (MAC) functions required under the protocol at the access point. As described in the specification, some MAC functions such as cyclical redundancy check (CRC) and acknowledgement/retransmission (AK) functions are simple to perform but time-critical. Other MAC functions are not time-critical, but more complex to process, such as handling association requests and roaming functions. In accordance with the invention, the first group, called "lower level" functions, are handled in a simplified access point, called an RF port, while the second group, called "higher

level" functions are handled by a common computer/ cell controller/ or device, which is connected to a plurality of RF ports. The separation of these functions provides for simplification of the design, hardware and software of the RF port, as compared to an access point, and provides for greater flexibility in, for example, load management and quality of service (QoS) functions. Additionally, the common computer/ cell controller/ or device can provide for downloading of firmware to the RF ports thereby enabling convenient updating of firmware.

Applicant respectfully submits that neither Panasik nor Belanger, whether considered individually or in combination, show, teach or suggest applicant's invention. In particular, the cited references do not show the elements of applicant's independent claims 28, 29, 32, 33 and 59.

Claim 59

Claim 59 is directed to a system for wireless communications between mobile units and a wireless network. The wireless communication system conforms to a wireless data communication protocol. (Dependent claim 69 specifies that this protocol is the IEEE Standard 801.11 protocol). The wireless communication system has devices wired to a wired network which include a cell controller and RF ports through which mobile units can access the wireless network. The wireless data communication protocol has a set of high level and a set of low level of MAC functions (See e.g., the sets of high level and low functions shown in the specification at page 15). Claim 58 explicitly requires that performance of the MAC functions is divided between the cell controller and RF ports. The cell controller performs the set of higher level MAC functions. The RF ports perform the set of lower MAC functions.

Applicant respectfully submits that this “division of labor” between components or devices of the wireless network for performing protocol MAC functions is not shown, taught or suggested by the cited reference — Panasik and Belanger.

Panasik does not relate to a shared medium wireless network. As noted by the Examiner, Panasik relates to management of spatial diversity in a wireless network, but does not disclose a system which has MAC control functions or higher/lower levels of MAC control functions. (Office Action, section 1.7 page 9). Thus, Panasik cannot teach or suggest a division of labour between wireless network components or devices for the performance of the MAC control functions as required by claim 59.

Like Panasik, Belanger also does not show, teach or suggest a division of labour between wireless network components or devices for the performance of MAC functions. Belanger is concerned with a wireless network self-learning system which allows a mobile unit to determine an optimal access point as the mobile unit roams within the network coverage areas. The system gathers information on the functioning of access points, which is then transmitted to the mobile unit so that the mobile unit can decide if a better access point on the wireless network is available. (See e.g., Abstract and Summary of Invention, col. 2 lines 20-25).

As correctly noted by the Examiner, Belanger describes a wireless network that conforms to a communication protocol, which can be the IEEE Standard 802.11 (See e.g., col. 10 line 62- col. 15 line 56, and col. 31, lines 59-61, and FIG. 27). Further, Belanger describes particular data format for activating or requesting protocol MAC functions (i.e., a MPDU format, FIGS 12 and 13, col. 11 lines 13-27). The data units, which have the MPDU data format, include conventional pairs of complimentary

instruction and response frames for communication between mobile unit and an access point (e.g., Request to Send (RTS) and Clear to Send (CTS), data (DATA) and Acknowledge (ACK)). (See e.g., FIG. 12 and 13). However, applicant respectfully notes, Belanger describes only conventional access points that have conventional MAC functionality. (See e.g., FIG. 3, col. 4 lines 52-64). Belanger is not concerned with the allocation of the performance of MAC functions between different components or devices of the wireless network. In particular, Belanger fails to show, teach or a division of labour between two wireless network devices (i.e. a cell controller and a RF port) for the performance of MAC control functions as is required by claim 59.

Thus, neither Panasik nor Belanger, shows, teaches or suggests the elements of claim 59 that relate to the division of labour in the performance of MAC functions between two different types of network devices (i.e., cell controllers and RF ports). Accordingly, claim 59 is patentable over the cited references irrespective of whether they are taken individually or collectively. Further, dependent claim 69 which depends from claim 59 also is patentable for at least the same reasons.

Claims 28, 29, 32, and 33

Claims 28, 29, 32, and 33, all relate to the functioning of the simplified RF ports in applicant's inventive wireless communication system in which responsibility for the performance of MAC control functions is distributed over a plurality wireless network device types (e.g., a cell controller and a simplified RF port). In particular, claims 28 and 29 relate to methods for transmitting formatted wireless data signals from a wireless network to a mobile unit via the simplified RF ports which interface with an wired network. Conversely, claims 32 and 33 relate to methods for receiving formatted

wireless data signals from a mobile unit at the simplified RF ports for retransmission to the wireless network.

Claims 28, 29, 32 and 33 all require that the simplified RF ports are configured to perform a low level of MAC functions, while higher level MAC functionality resides on the wireless network with which the simplified RF ports interface. In the signal transmission or receiving methods of each these claims, the simplified RF ports perform low level MAC functions (e.g., transmission of ACK signals to mobile units). The simplified RF ports further communicate with the wired network using data signals that are formatted according to or for the higher level MAC functionality available on the wired network.

Applicant respectfully submits that neither Panasik nor Belanger, whether considered individually or in combination, show, teach or suggest the data transmission/receiving methods of claims 28, 29, 30 and 33. As discussed above with respect to claim 59, neither Panasik nor Belanger is concerned with a division of labour in the performance of MAC functions between access points and other wireless network devices. In particular, neither reference describes data transmission/receiving methods in which a simplified RF port communicates with a mobile unit using low level MAC functions, and transmits/receives data signals from a wireless network which performs high level MAC functions.

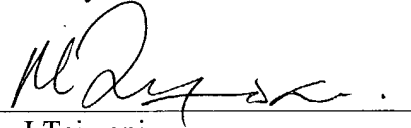
Accordingly, claims 28, 29, 32 and 33 are patentable over the cited references, whether taken individually or collectively. Further, dependent claim 30-31, 34-36, and 60-68 also are patentable.

Conclusion

For at least the foregoing reasons, the prior art rejections of claims 28-36 and 59-69 should be withdrawn. Applicant respectfully submits that this application is now in condition for allowance. Reconsideration and prompt allowance of which are requested.

If there are any remaining issues to be resolved, applicant respectfully requests that the Examiner kindly contact the undersigned attorney for a telephone interview.

Respectfully submitted,



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